

***Africa Research in Sustainable Intensification for the Next Generation***

Africa-rising.net



4th strategic Innovation Platform Meeting Report Endamehoni woreda

**Mohammed Ebrahim, Tesfaye Hagoss, Mereciet Hadush and Getachew Bisrat June 16- 2016**

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The Africa Research in Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the U.S. government’s Feed the Future (FtF) initiative.

Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three projects are led by the International Livestock Research Institute (in the Ethiopian Highlands) and the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa). The International Food Policy Research Institute leads an associated project on monitoring, evaluation, and impact assessment.

**Africa RISING project: Endamehoni woreda4thnd strategic Innovation Platform meeting**

**Date**: June 16 -2016

**Venue** –Mehoni Agricultural reserch center Meeting Hall Ahadu Hotele, Maichew

**Facilitator**: Mr Teklay Abebe

**Raporter**: Mss. Mereciet Hadush and Tesfaye Hagoss

**The Agenda of the IP meeting was listed as the following**

* Presenting of Africa RISING food crop on farm research and other activities status (By Ato Mohamed Ibrahim)
* Briefing of Africa RISING Feed and feed related research activities Status (By Ato Tesfay Hagos)
* Explain of the fodder Tree and fruit related AR activities condition (By W/ro Meresiet Hadush)
* Discussing and Presenting Scalable technology (By Ato Mohamed Ibrahim)
* Undertake general Discussion and reflection of participants (Chair By Ato Tesfay Hagos and Ato Teklay Abebe)

**Registration, welcome and introduction, opening remarks**

Registration is done before starting the meeting. The facilitator of the registration was Mr Getachew Bisrat (assistant site coordinator).

The welcome and the introduction were said by Mohamed Ebrahim Africa Rising site coordinator. He forwarded a warm welcome to the audience of the meeting. He also introduced what will be covered in the meeting. Mr Mohammed mentioned the meetings session will be included what was done in the last three years with Africa RISING project in Endamohoni woreda. What are the major achievement and Africa RISING best practice? What opportunities, challenges experienced, solutions were? What were the challenges? How the listed challenges will be addressed? In addition Mr. Mohammed mentioned the four presentation; Food related on farm research activities and their final results, feed related on farm research activities and final result, fruit and tree related on farm research activities and their status and the project best practice (scalable technology and practices). Finally Mr. Mohammed Ebrahim closes his speech by inviting Mr. Tekaly Abebe TARI-Alamata agricultural research center Director to make short opening speech.

Mr Teklay Abebe started his speech by thanking Africa RISING project for arranging the learning and sharing event and inviting him to take part in the meeting. Mr. Teklay Abebe said Africa RISING project is a unique participatory project which works developmental research activities/ interventions together with relevant local partners and farming communities in problem identification, prioritization, planning intervention, implementation and evaluations. Because of its participatory approach most the research interventions targets the communities’ prior problem and shows promising result. Introducing new varieties, improved agronomic practice, organizing farmers in cluster or group, training, experience exchange and field day were the project best effort farmers to raise their interest and awareness to use agricultural technology. At the end Mr. Teklay said Africa RISING project with its partners works on many on farm research interventions and identified many best technologies and practices on smaller number of farmers and Alamata ARC also did the same, Potential partners like office of agriculture, TVET, GRAD and research centers should scale up the best technologies and practice to wider communities. Finally Mr. Teklay closed his speech after noting the meeting participant to participate actively and to take their own responsibilities for the scaling of the project scalable technologies further and wishing to have the interactive and best time.

**Introduction about Africa RISING project –At Endamehoni site**

* Mr. Mohammed Ebrahim starts his presentation from the project description. As to his explanation Africa RISING is an abbreviation of Africa Research in Sustainable Intensification for the Next Generation. Africa RISING is Research for development project supported by USAID as part of the U.S. government’s Feed the Future initiative. In Ethiopia, the project is operational in Amhara, Oromia, Tigray and SNNP regions.
* In Tigray Region Africa RISING is working in two kebeles of Endamehoni Woreda called **Tsibet and Embahasti Kebeles**.
* The main aim of the project in the Ethiopian highlands is to identify and validate solutions to the problems experienced by small-holder crop-livestock farmers. Intensification, action research, small holder farmers, food security, income diversification and nutrition are pillars of the project.
* Africa RISING has already established operational Innovation Platform (IP) at the two Kebeles and strategic IP at Woreda level to foster cross learning, coordination and innovations.
* The key members of the Woreda level IP are Endamehoni Woreda Sector Offices, Mekele University, Alamata and Tigary Agricultural Research Centres, NGO, Maychew TVET, Tsibet and Embahasti kebeles representatives.

**Currently the project:**

* Introduce best proven technologies and practices on farmers’ field trough participatory approach.
* Change farmers’ perception and attitudes towards technology and improved practices.
* Enables farmers to learn and use new practices and technologies there by to increase their production and incomes per given plots of lands.

**Africa RISING food crop on farm research findings and other activities status (By Mr. Mohamed Ebrahim)**

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| **Table 1. Summary of Africa RISING Research activities and participant farmers in the year 2015** | | | | | | |
| **No** | **List of activities** | **participant farmers per kebele** | | | | **Total No of participant** |
|  |  | **Tsibet Kebele** | | **E/hasti kebele** | |
|  |  | **M** | **F** | **M** | **F** |  |
| **1** | **Potato seed multiplication (and fertility trial)** | **23** | **4** | **8** | **4** | **39** |
| **2** | **Fababean seed multiplication** | **8** | **1** | **11** | **1** | **21** |
| **3** | **Wheat seed multiplication** | **5** | **1** | **3** | **-** | **9** |
| **4** | **Barley seed multiplication** | **2** | **2** | **3** | **-** | **7** |
| **5** | **Fababean IDM** | **1** | **1** | **2** | **-** | **4** |
| **6** | **PVS (Durum wheat, Field pea, lentil)** | **6** | **-** | **4** | **2** | **12** |
| **7** | **Lupine Adaptation trial** | **-** | **-** | **-** | **1** | **1** |
| **8** | **Oat-vetch demonstration** | **12** | **3** | **10** | **5** | **30** |
| **9** | **Tree Lucerne demonstration** | **13** | **-** | **9** | **1** | **23** |
| **10** | **Desho grass Demonstration** | **3** | **-** | **8** | **-** | **11** |
| **11** | **Crop residue shade and feed trough** | **8** | **1** | **11** | **-** | **20** |
| **12** | **Wheat fertility trial** | **28** | **9** |  |  | **37** |
| **13** | **Apple** | **19** | **6** | **18** | **7** | **50** |
| **Total No of participant** | | **128** | **28** | **87** | **21** | **264** |

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| ***Table2. Food crop PVS protocols and end season evaluation result in 2015*** | | | | | | | | |
| **Crop type** | **Variety** | **No of replication** | **Days to maturity** | **Min Grain yield in quint/ha** | **Max Grain Yield/ha/ I quint** | **Grain yield (qt/ha)** | **straw yield (qt/ha)** | **End season evaluation Rank** |
| **Durum wheat** | Bacalcha | 4 | 154.75 | 38.6 | 60.9 | 53.425 | 52.925 | 4 |
| Ginchi | 4 | 153.25 | 36.2 | 55 | 45.55 | 68.375 | 3 |
| mankude | 4 | 160 | 35.5 | 65.9 | 53.625 | 57.225 | 1 |
| Ude | 4 | 160 | 35.4 | 80.9 | 66.725 | 50.6 | 2 |
| Yerer | 4 | 160 | 38.6 | 62.9 | 50.875 | 73.625 | 5 |
| **Lentil** | Alem tena | 4 | 121.5 | 19.96 | 27.88 | 23.86 | 32.63973 | 3 |
| Alamaya | 4 | 125.5 | 14.6 | 33.88 | 26.58 | 47.66063 | 1 |
| Chekol | 4 | 119.5 | 17.24 | 25.88 | 21.22 | 32.84027 | 5 |
| Denbi | 4 | 133.5 | 16.6 | 33.24 | 23.92 | 42.17462 | 4 |
| Derash | 4 | 128.5 | 20.28 | 34.2 | 28.06 | 43.51503 | 2 |
| **Field Pea** | Bilalo | 3 | 150.3333 | 36.96 | 53.68 | 43.28 | 54.84255 | 3 |
| Burkitu | 3 | 145.6667 | 27.68 | 53.68 | 40.08 | 46.08404 | 2 |
| Gume | 3 | 144.6667 | 26.48 | 53.68 | 38.16 | 49.97954 | 1 |
| Markos | 3 | 150.3333 | 29.1 | 40.4 | 32.90667 | 47.52257 | 3 |
| Megeri | 3 | 144.6667 | 31.28 | 56.24 | 42.98667 | 40.44447 | 4 |

* **Seed multiplication**

From the PCA finding one of the production bottleneck is access of improved seed. To solve this problem Africa RISING project is working on community seed production. From 2013 and 2014 demonstration farmers with their own criteria select best wheat (Mekele-4), , barley-HB1307), and potato (Gudene, belete) varieties. Africa RISNIG project support farmers to produce quality seed of selected crop varieties by providing initial seed, fertilizer and technical support. The project construct 7 DLS to potato seed producer farmers. 20 triple bags also distributed for fababean storage. Community seed production helps model farmers to produce quality seed and maintain seed for themselves, to promote famer to farmer seed exchange system, to use the model farmers’ field to teach other farmers to learn implement. CSM also play a great role in technology scaling up.

The following table shows the role of the Africa RISING project supporting farmers to produce quality seeds (CSM).

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| **Table 3. Community seed multiplication in 2015** | | | | | |
| **Cropping year** | **Research kebele** | **No of farmers** | **Crop type** | **Varieties** | **Total seed produced** |
| **2015** | Embahsti | 6 | Potato | Gudene | 105 |
| Tsibet | 3 | Potato | Gudne | 69 |
| Embahasti | 7 | Fababean | Gebelcho | 42 |
| Tsibet | 7 | Fababean | Gebelcho | 49 |
| Embahasti | 3 | Barley | HB1307 | 55 |
| Tsibet | 4 | Barley | HB1307 | 39 |
| Embahsti | 3 | Wheat | Mekel-4 | 44 |
| Tsibet | 5 | Wheat | Mekele-4 | 57 |
|  | Total 38 | | | | 460 |

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| Table 4. Summary of selected crop Varieties | | | | |
| Research kebele | Crop | Varieties | Grain yield in quintals | Farmers’ evaluation ranking |
| Tsibet | Faba bean | Gebelcho | 61.6 | 1 |
| Tumsa | 59 | 2 |
| Emba Hasti | potato | Belete | 514 | 1 |
| Jalene | 479 | 2 |
| Gudene | 435 | 3 |
| Tsibet | Wheat | Mekele -4 | 86-94 | 1 |
| Hidase | 66.64 | 2 |
| Tsibet | Food barley | HB1307 | 80 | 1 |
| Malt Barley | Holker | 60 | 2 |
| MC21 | 58 | 2 |
| Tsibet and Emba Hasti | Lentil | Derash | 28.06 | 2 |
| Alemaya | 26.58 | 1 |
| Tsibet and Emba Hasti | Field pea | Bilalo | 43.28 | 2 |
| Megeri | 42.9 | 4 |
| Tsibet and Emba Hasti | Durum wheat | Bakalcha | 53.4 | 4 |
| Makude | 53.6 | 2 |
| Ude | 66.7 | 1 |

* **Capacity building Activities**

Besides conducting participatory on farm research activities Africa RISING project plays a great role to build the capacity of farmers, experts, and researchers through training, field visit, field day and experience sharing activities. The following table shows some capacity building activities done by the project.

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| **Table 5. capacity building activities** | | | | | |
| **Partners** | **Field days, visit, mid and end evaluation** | **Trainings within & outside the site** | **Workshops/meetings within and outside the site** | **Survey** | **Total** |
| **Farmers** | 236 | 107 | 53 | 300 | 696 |
| **Extension** | 38 | 5 | 26 | 1 | 70 |
| **Research** | 13 | 4 | 17 | 9 | 43 |
| **University/college** | 6 | 1 | 19 | 3 | 29 |
| **CG-Centers** | 2 | 7 | 28 | 10 | 47 |
| **Others government sector** | 21 | 1 | 20 | - | 42 |
| **Total** | 316 | 125 | 163 | 323 | 927 |

***Feed Related Interventions***

Livestock are an important source of livelihood for farmers in the highlands, however, feed scarcity has severely challenged livestock production. Currently, natural resource management structures implemented by local government institutions demand restriction of free grazing. This calls for, among others, adoption of suitable forage cultivation practices to improve feed resource availability

Africa RISING project also works a lot in introducing new tree and grass forages. The main purpose of the project intervention in forage areas is to reduce or solve livestock feed quality and quantity problem.

The following intervention are some livestock feed related interventions.

* **Oat- vetch demonstration of supplemental irrigated/rein fed fodder production.**

The main objectives of this intervention is to demonstrate improved forage production systems under irrigation and rain fed condition that can complement the existing feed resource base. In the areas more than 75 % of livestock feed is Crop residue which is very poor in nutria content. So complimenting CR with oat-vetch mixture production will increase the nutritional quality and quantity of livestock feeds. Oat and vetch are compatible for intercropping, it can be produced under rain fed or with supplementary irrigation. Produce forage mixture with balanced energy and protein contents. The best time for harvesting is when the crop starts flowering. The Seeding rate at 3:1 (oat: vetch). In 2015 30 farmers of the two kebeles were grow oat-vetch mixture forages and feed their dairy cows, fattening oxen and sheep.

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|  |  | **Mixed ration/day/head** | |
| **Type of Animal** | Type basal feed | Oats-vetch green or oat-vetch hay (kg) | Basal feed (kg)\* |
| **Cattle** | Cereal residues | 2.5/0.95 | 4.05 |
| Cereal & legume residues | 2.0/0.75 | 4.25 |
| Cut-and-carry grasses, grazing | 0.74/0.28 | 4.72 |
| Grasses, grazing and residues | 1.4/0.53 | 4.07 |
| **Sheep** | Grasses, grazing and residues | 0.80/0.30 | as consumed |

Nutritional quality of oat-vetch mixture produced in the AR sites:

* Crude protein 16%
* Dry matter digestibility 68%
* Metabolizable energy 9.76 Mega joule/kg DM
* Calcium 7.3 g/kg DM
* Phosphorous 3.4 g/kg DM
* Zinc 21 mg/kg DM
* **Crop residue shade and feed trough**

South Tigray zone particularly Endamehoni woreda is characterized by mountainous, sloppy and fragmented land scape. Average land holding size is around 0.5 ha.

* No or small grazing land Couse farmers to depend on crop residue as the main sources of livestock feed. Even though Crop residue contributes 75-80 percent of the total livestock feeds. Farmers Traditional (poor) handling and feeding leads wastage and of crop residue. This also causes farmers to farce a serious feed animal shortage. Therefore proper handling and feeding of crop residue has a vital role in alleviating the serous feed shortage. To solve this problem Africa RISING project demonstrate 21 improved crop residue shade and feed trough. Farmers also name it “altayesh” which means never seen before. It hhelp to store safely all types of straw (including pulse).
* Save 50 % of feed from loss, promote zero grazing and its Costs=2230 birr (carpenter and industrial material). The two sided feed trough also play a vital role; It Promote fattening, animals do not expose for sun light and rain, It reduce/make zero wastage of feeds during feeding and its carpenter and industrial materials cost is around 1200. Zonal and district bureau of agriculture are working to expand the intervention through field visit and sample demonstration at each kebeles FTC and some model farmers level.

**Tree and Fruit related on farm research activities and their status**

* ***Action on-farm research on tree Lucerne***

**Tree Lucerne- is multipurpose and leguminous tree species that adapts well in the highlands**

**The main objectives of the intervention is:**

* **To compare survival and growth of tree Lucerne across contrasting sites and growing niches**
* **To identify the key determinants of tree Lucerne survival and growth on farms in the crop-livestock systems.**
* **To determine the cutting height and frequency for higher biomass yield**

**Africa RISING in the Embahsti and tsibet kebele works with 25 farmer (FRG) and each farmer participating in the research received on average 50 seedlings.**

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| **Table 1. Mean survival, height and RCD by region** | | | | | |
| **Survival and growth** | **Amhara (N=48)** | **Oromia (N=41)** | **Tigray (N=38)** | **SNNPR (N=32)** | **P value** |
| **Survival after 9 months (%)** | **14.81** | **35.21** | **17.89** | **43.560** | **0.000** |
| **Height after 9 months (m)** | **0.361** | **1.235** | **0.461** | **0.659** | **0.021** |
| **RCD after 9 months (cm)** | **0.339** | **0.876** | **0.562** | **0.928** | **0.002** |
| **Correlations: survival and height correlation(r) is equal to 0.527 (p=0.000); survival and RCD, r=0.786 (p=0.000)** | | | | | |

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| --- | --- | --- | --- | --- |
| **Table 2. Mean survival, height and RCD by niches** | | | | |
| **Niche** | **Backyard** | **Outfield-terraces** | **Outfield-Irrigated land** | **P value** |
| **Survival after 9 months (%)** | **30.45** | **11.19** | **9.42** | **0.007** |
| **Height after 9 months (m)** | **0.771** | **0.221** | **0.337** | **0.189** |
| **RCD after 9 months (cm)** | **0.728** | **0.283** | **0.428** | **0.039** |

* **Household size, access to reliable water supply for irrigation, and management factors—including fencing planted-seedlings, mulching during dry periods, clean spot weeding and applying organic fertilizers—significantly enhanced survival and growth of tree lucerne in the planting sites**
* **Tree Lucerne can produce more than 4 t ha-1 dry biomass per year under farmers’ management condition and when planted at 1 m X1 m spacing. A cutting height of 1m to 1.5 m provides good biomass. The plant can be harvested 2-3 times per year depending on the management.**
* **Tree lucerne in well-managed farm fields can grow to a reasonable size for harvest and use as animal feed within nine months after planting. However, for farmers to successfully grow tree lucerne on their farms research, extension and farmers have to work jointly to identify leverage points for integrating tree lucerne in existing farming systems and capacitate local farmers on tree lucerne management.**
* ***Integration of High Value Products (apple) into Mixed Farming Systems.***

***The main objectives***

* Introducing high value crops intervention would contribute :-
* To identify niche options for high value products through on-farm testing and evaluation of promising tree species.
* To improve food security, feed, nutrition and health,
* To diversify and increase source of income,
* To evaluate potential constraints to the adoption of these products
* To mitigate the problems of soil erosion, nutrient depletion and degradation.

Key Research thematic area of ICRAF;

* Capacity building
* Improving quality Germplasm
* On farm and on station Fruit tree variety adaptation trial

Africa Rising project with ICRAF provide 500 apple seedlings of Anna and Prencissa varities for 50 HH. Theoretical and practical training Apple training were given two times, before and after planting.

The seedlings are currently in good performance in most farmer’s field. Growth are survival data are regularly collected in 6 month interval. In addition close monitoring, meeting and discussion made several times FRGs to improve the management practices. Apple trees introduced before 7 years were infected by Woolly Aphid and Powdery mildew. To avoid the infestation chemical spray is recommended but the dis agreement b/n beekeepers and apple growers delay the spray and the problem is still continued.

**Research Findings on apple**

**Survival rate ranges (between 90 and 100%) for avocado and (between 75 and 96%) apple across sites**

Management effect on apple sapling growth performance

* Variation in management practices had significant effect on apple sapling Diameter & height growth particularly at 12 month growth period (P< 0.05).
* In more management practice application maximum height & Diameter growth was recorded.
* Female managed apple saplings were observed better growth condition than male.

Promising high value species/varieties and management interventions;

* + Create **job** opportunity for **women and youth**
  + Country stakeholders have access to improved **knowledge & ability** to engage in promoting high value trees and inform key policy and investment decisions with evidence for **larger investment**
  + Contributes to income diversification and reduced poverty,
  + Improve food and nutrition security especially for children and women.
  + Provide ecosystem services such as reduce soil erosion and degradation.
* ***Introducing walnuts fruits trees***
* The main objectives are for variety adaptation trial and planting material access.
* Five walnut Germplasms (five seedlings) were brought from china and planted at Zatata kebele (Alalamata ARC fruit nursery), all the management and data collection activities will be done by Alamata ARC.
* Currently the seedlings are in good conditions.

Walnut fruits has the following main health importance/Top Reasons to Eat Walnuts/

* Cancer-Fighting Properties
* Heart Health
* Weight Control
* Improved Reproductive Health in Men
* Brain Health
* Prevent Diabetes

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**Fig 1. Fababean Seed multiplication and disease control**

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Figure 2. Women farmer evaluating Durum wheat PVS Fig 3. Zonal and woreda Officials visiting on farm research activities

 

Fig 4. Woman farmer Harvesting Fababean CSM Fig 5. A farmer with His well performed Fababean plant



Fig 6. Oat-vetch mixture Demonstration on larger plot Fig 7. 2015 Field day participant group photo

* ***Other cross cutting activities***
* MSC student support:- the project support two MSC students from Miachew ATVET College and Mekele university with finances and other arrangement to collect all necessary data for their research.
* Row planter development and improving –Africa RISING project cover all inputs and professional fees to maichew ATVET College to develop one multi-row planter. Participant from Office of agriculture, research center, college and other farmers evaluated the new row planter and improved based on the feedbacks. Now the row planter is ready to use.
* Participating with regional plat forms- both site and assistant site coordinator participated in Mekele mechanization stakeholder meeting and presented Africa RISING R4d activities. The meeting was a good opportunity to popularize the project itself and its best practice.
* Africa RISING project best practice and technologies document preparation; the project best practices and technologies were documented and translated in to Tigrigna language and shared to all relevant partners.
* Scaling discussion with Office of agriculture and GRAD; discussion was made with GRAD and Endamehoni woreda Office of agriculture to scale up Africa RISING promising technologies and practice. Fter the discussion Office of agriculture plan to scale up, Oat-vetch, fababean, Crop residue shed and feed trough and GRAD project to scale up Potato, wheat and barley.
* Weather data collection: - Regularly metrology data collected from the two kebeles modern met-station Met- station plantation- Two modern Met stations were planted in the two kebeles.
* Model farmers experience sharing; apple and tree Lucerne FRGs field visit organized two times on model farmers’ field.
* **Challenges encountered during on farm research implementation**

Even though most research results were promising the following challenges were faced during 2014 cropping season.

* Free grazing – Animals are Damaging Apple and tree Lucerne seedlings/ trees.
* Natural problems (Erratic rainfall, snow and frost)
* Apple Disease- powdery mildew and Aphid and the dis agreement b/n beekeeper and apple grower farmers to spray chemical.
* Farmers incentive seeking, and lack of interest to pay back seeds
* Some Farmers allocate plots for the project and latter (during planting) change their Ideas.
* Less fellow up by farmers especially on Tree Lucerne and Apple fields.
* Some farmers expects the project to weed, fence and manage their farm.
* Lack of effective row planter-manual planting is labor intensive
* Farmers incentive seeking, and lack of interest to pay back seeds
* Some farmers used the seed for HH consumption.
* Partners work overload

Some of the opportunities for the successful achievements of on farm research activities are

* Less research intervention in the two PAs.
* Existence of d/t partners around.
* Innovation plat form approach
* Researchable problems.
* Favorable agro ecology for research.
* Farmers interest to engage in different research activities.
* Promising results of technologies
* Interests of some partners like office of agriculture and GRAD to scale up some of AR Technologies

**General Discussion**

After the presentation of Africa RISING project 2015 R4D activities; food crop, feed, tree and fruit, capacity building and other cross cutting activities there was a discussion by all the participants of the meeting.

**Questions and comments raised by the participant**

* Africa rising was provide us Different technologies with in the short period of time span, out of which Apple fruit tree was performed good, but due to different disease it is now damaged and no solution was found yet. The farmers are raised the apple disease is serious and need quick solution. Chemical spraying was also not allowed for the sake of the bee colony death. So possible solution should be get for the this problem
* The project approach is very participatory; it works with all relevant partners. Associating with the small land size and less awareness of technologies the two AR sites are difficult to conduct successful research, but Africa RISING with this challenge shows visible impact in introducing promising technologies and practices which should scale up further.
* The project was show us on wheat raw planting in small plot with human labor, how can we apply it in large farm area especially during oxen ploughing, so we need oxen driven wheat raw planter.
* The project was working in the two kebele especially in specific areas, so how can we expand to other non-beneficiary farmers of the two kebele and other kebele. The project should scale up and out the best technologies to other farmers of the kebele and other kebele
* We are discussing on the scalable technologies but the time is too late because we are already started planting, so such type of discussion and input supply should be earlier as much as possible
* The IP meeting schedule was four times per year but the actual meeting was no as per the schedule, so we have to keep the proper schedule
* The project should use FTC farm lands in addition to the farmers farm for convincing other farmers
* Africa rising was provide office equipment such as computer and printers to different Stakeholders, but the two kebele’s which are project area are not get any office material so this should get attention in next time. The two kebele’s have no electricity problem.
* The office material donation was very model role for the other projects in capacity building and it will help partners to solve their office material problem.
* Constructing potato DLS on FTC level can also help to learn more farmers of the two kebele
* The experience sharing provided by the project was very interesting and this should be strengthen for the future
* The project prepared and shared short document on best practice and technology both in English and Tigrigna language which is really very important to decimate the best technologies and practice further to wider community. Participant also recommend prepare detail manual on each best practice and promising technologies.
* The chemical for protection of Fababean disease was effective and need to use in wide farmers throughout the woreda and zone
* On the IP meeting especially on the final research work activity briefing representatives of non- participant farmers should be invited.
* Research finding on Apple and tree Lucerne are not detail unlike the other findings.
* Africa RISING brought too many promising technology and practice this practice should be presented to the whole woredas of south Tigray zone.
* The knowledge center at the woreda and kebele level should be arranged, otherwise after the phase-out the projects their good start up will cease.
* Oat-vetch research result is very attractive and AGP needs to work more on it with office of agriculture.

**Reflection on questions and comments**

* The possible recommend solution for the apple disease is two use chemicals that were not damage bee, we can also move the bee hive to forest areas for few days and we can also apply the chemical evening time. The T-Fordi chemical is not allowed because it is highly damaged.
* AS woreda we recommend and delegate the forest for bee production so we have to discuss with the farmers that have bee hive in homestead
* The woreda office of agriculture and Farmers themselves should take responsibility of scaling up to other kebeles. Farmers should maintain and share technologies to the other farmers and they should adopt the technology as a package. The extension people also should have the responsibilities to facilitate scaling to wider communities. The project and other research institution will help to awake from sleep and to show improved technologies and practice in limited scope.
* Apple disease is a year round problem, Alamata ARC with Africa RISING project agreed to identify the disease and necessary measure soon to be taken. The woreda Administration together with the kebele DAs will solve the implementation problem (the disagreement between framers).
* Providing desktop to Kebele DAs will be easy but the, DAs technical knowhow and maintain ace issue is a problem. The wored administration also willing to provide the desktop if it is necessary to them.

**Issues raised on scaling up of promising technologies**

* One the main discussion points was scalable technologies and potential partners. The innovation platform approach helps partners to engage on scaling of best technologies.
* GRAD project is working on potato scaling up of potato; it distribute 178 quintal of potato (Gudene), 114 quintal of potato and wheat (Hidasie) crop varieties. In addition GRAD is constructing DLS at individual farmers and cooperative level. Wheat (hidasie and danfe) to other kebeles of the woreda.
* The project is also planning to provide Apple fruit tree seedling and different forage varieties to different woredas (Endamekoni, Emba Alaje) of southern zone of Tigray. It is also have plan to provide training for beneficiary farmers.
* GRAD is inviting the different institutions to work together especially in apple trees.
* Office of agriculture is scaling crop residue shade and feed trough, they plan to construct in each FTC and on model farmer, they have are also planning to scale up Barle (Hb1307), Fabeaben with its disease management and Oat-vetch..
* For promising technology transition issue BoARD should organize a workshop and working on this issue with different stakeholders
* Alamata Agricultural research center is interesting to work on fabeaben with its disease management as a pre scaling up activity.
* TARI-needs to demonstrate Crop residue shade and feed trough across the region, and facilitate scaling.
* On the feed storage and feed trough technology it is good technology but it need simple modification on the feed storage especially on its side to protect from rain interference
* Raya brewer factory needs to produce quality malt barley and there is a long term plan to substitute the import mal. Alamata and AR works on malt barley PVS so sample of selected malt barley varieties should be sent to Raya Brewery for nutritional analysis
* The tree Lucerne survival rate was poor, so why we are scaling up it, it should be demonstrate again before it scaling up
* The wheat and other food crops scaling up activities should be done in cluster to produce quality seed and to convince farmers.
* The promising technologies manual with local language should be prepared and distributed to different stakeholders and the farmers as well for more understanding.
* The woreda Administration head was taking responsibility for scaling up of the promising technologies with office of agriculture in the woreda.
* Africa RISING project should facilitate the scaling work through presenting the research findings to different stalk holders and through discussing and following up of the extension peoples.
* Africa RISING also should work with potential projects for scaling, like Cascape.

**General reflection and closing**

In general the meeting was very fruit full and participant reflect the following General suggestions /comments

* The apple should sprayed chemical by discussing with the community and displacing moving the honey bee hives to some are for at least two months
* All research inputs should be early supplied
* Africa rising should documented by written material, video, photo, pamphlet etc. All the best practices, technologies, lessons learned and approaches followed to transfer to wide area and beneficiaries.
* The project should share its best findings in different woredas meeting and should facilitate the scaling.
* In the second phase Africa RISING should reach more number of farmers through scaling of best technologies.

Finally Mr. Woldu Teka/Endamehoni woreda Administration head make closing speech, he started his speech by thanking the project for organizing the meeting, inviting him to attend and to make the final remark speech. Mr woldu said before two generation Ethiopia had less number of population as compared to its fertile and wide arable lands, but currently the number of population is increasing at alarming rate and the land size shrinks, its fertility and productivities decrease from time to time. We ca not increase the size of land, the only thing that we can do is improving our cultivation system to improve its fertility and to decrease the land degradation. Agricultural technologies are the only best options to increase the production and productivities, Africa RISING project introduce many successful food and feed crop, fruit and tree technologies and other improved practice. So our homework will be scaling up of these technologies and best practice to wider communities and mainly this will be the responsibilities of office of agriculture and administration. We look forward Africa RISING to continue its best research interventions /best practice/ and facilitate the scaling of technologies for wider impact to change our populations’ life. At the end he concludes his speech by appreciating the active participation of all stakeholders.

**Annex 1: List of Endamehoni Woreda strategic IP members**

**IP registers (tool 2a)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Name of Member** | **Sex** | **Name of Organization** | **Type of organization** (Research, Local government, NGO, Private, Farmer association etc.) | **Major role/contribution to IP** | **Telephone/email** |
| **1** | Gebreegziabher Aregawi | **M** | **Zone Agr.** | Local government | **Invited** |  |
| **2** | Haftom Hagos | **M** | Woreda Agr. | Local Government | **SIP Chair person** |  |
| **3** | Abera Demisie | **M** | Woreda Agr. | Local government | **Member** |  |
| **4** | Teklay Abebe | **M** | Alamata ARC | Research | **Member** |  |
| **5** | Harnet Abraha | **F** | TARI | Research | Member |  |
| **6** | Tesfay Hagos | **F** | **TARI** | Research | M&E Champion |  |
| **7** | Meresiet HAilu | **F** | **CIP** | Research | Member |  |
| **8** | Haftay Kahsay | **M** | **GRAD** | NGO | Gender Champion |  |
| **9** | Getachew Kahsay | **M** | **Maichew ATVET** | **Local government** | **Member** |  |
| **10** | Haile silasie | **M** | EIAR/Mehoni ARC | Research | Member |  |
| **11** | Weldu Teka | **M** | Woreda Admin | Local government | Member |  |
| **12** | Jemila Ahmed | **M** | Woreda Admin | Local Government | Member |  |
| **13** | Byrau Kiross | **M** | **PAS** | Local government | OIP Technical Committee |  |
| **14** | Birhanun G/kiross | **M** | **PAS** | Local government | OIP Technical Committee |  |
| **15** | Kesh Birhanu Aregaw | **M** | **PAS** | Local government | OIP Technical Committee |  |
| **16** | Eyasu HAdera | **M** | **PAS** | Local government | OIP Technical Committee |  |
| **17** | Fitale Eyasu | **F** | **PAS** | Local government | OIP Technical Committee |  |
| **18** | Tadesse Kiross | **M** | **PAS** | Local government | OIP Technical Committee |  |
| **19** | Gubena Reda | **M** | **PAS** | Local government | OIP Technical Committee |  |
| **20** | Hayelom Gidey | **M** | **PAS** | Local government | OIP Technical Committee |  |
| **21** | Negash Siyum | **M** | **PAS** | Local government | OIP Technical Committee |  |
| **22** | Amarech TEka | **F** | **PAS** | Local government | OIP Technical Committee |  |
| **23** | Mohammed Ebrahim | **M** | AR | ILRI | Site coordinator |  |
| **24** | Getachew Bisrat | **M** | AR | ILRI | Assistant site coordinator |  |

**Annex 2: Endamehoni woreda 4th strategic IP meeting agendas**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Time | Activity | Presenter | Facilitator | Minute taker |
| 2:30- 3:00 | Registration | All | Getachew B. |  |
| 3:00 - 3:10 | Welcome | Mohammed E. | Teklay Abebe |  |
| 3:10 - 3:30 | Opening remarks | Woldu Teka | Harnet A. |
| 3:30 – 4:30 | Africa RISING food crop on farm research activities | Mohammed E. |
| 4:30 – 5:00 | Tea/coffee | All | Kagnew and Getachew |  |
| 5:00 – 4:45 | Africa RISING Feed and forage related research activities | Tesfay H. | Teklay Abebe | Haftay K. |
| 5:45 – 6:30 | Tree and Fruit related Activities | Meresiet H. | Getachew B. |
| 6:30 – 8:00 | Lunch | Individual |  |  |
| 8:00- 8:30 | Scalable Technologies | Mohammed E. | Tesfay H. | Getachew B. |
| 8:30 – 10:00 | Discussion and reflection | Habtamu/Gebregzabhier and Tesfay | Haftay K. | Meresiet and Getachew K. |
| 10:00 – 10:10 | Closing Remark | Gebregzabhier and Weldu |  |  |
| 10:10 – 10:20 | Group photo |  | Kagnew K. and Getachew B. |  |